REMARKS

Claims 1-23 are pending. Claims 1-15 and 21-23 have been withdrawn from consideration. Claim 16-20 are currently under examination. Claims 16-19 are amended.

DOUBLE PATENTING

Claim 16 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 13 of copending Application No. 10/806,957.

Applicant disagrees that the additional limitations in present claim 16 that are not found in claim 13 of copending Application No. 10/806,957 are obvious to one of ordinary skill in the art. In addition, Applicant would like to note that claim 13 of copending Application No. 10/806,957 includes a significant limitation that is not found in present claim 16, namely, "*wherein the direction of travel of the first portion of the web path is substantially* <u>*perpendicular*</u> *to the direction of travel of the second portion of the web path*" (emphasis added).

In view of the above, Applicant respectfully requests that the nonstatutory obviousness-type double patenting rejection of claim 16 be withdrawn, or held in abeyance until allowable subject matter is indicated.

35 USC § 112 REJECTIONS

Claims 16-20 stand rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Particularly, the recitation "position of the radiused section" is rejected for being unclear.

Applicant respectfully submits that the recitation "position of the radiused section" is clear to one of ordinary skill in the art in light of the originally-filed specification and drawings. For example, page 5, line 20 – page 6, line 7 and page 7, lines 5-16 of the originally-filed specification and FIGS. 1-2A of the original drawings clearly describe and illustrate that the size of the radius R can be varied by controlling at least "the distance that the web extends into or through the gap" (*Present application*, page 5, line 21). Thus, it is clear to one of ordinary skill in the art that the recitation of "position of the radiused section" in claim 16 is referring to the

position of the radiused portion 125 of the web 130 into the gap G, as shown in FIGS. 1 and 1A (e.g., the horizontal position of the radiused portion 125 in the gap G when viewed from the perspective of FIG. 1A) or the position of the radiused section 225 of the web 230 into the gap G, as shown in FIGS. 2 and 2A (e.g., the horizontal position of the radiused portion 225 in the gap G when viewed from the perspective of FIG. 2A).

In addition, claim 16 has been amended to further clarify the meaning of "*position of the radiused section*" by specifying that this refers to the position "*in the third portion of the web path.*"

In summary, Applicant submits that the rejection of claims 16-20 under 35 USC § 112, second paragraph, has been overcome, and that the rejection should be withdrawn.

35 USC § 102 REJECTIONS

Independent claim 16

Claims 16 stands rejected under 35 USC § 102(b) as being anticipated by Okubo et al. (JP 6317175).

Claim 16 has been amended to clarify the following:

1. claim 16 is directed to a web of indeterminate length,
2. the definition of the web path, and
3. "*creating a signal based on the position of the radiused section...*" includes "*creating a signal based on the position of the radiused section in the third portion of the web path....*"

Applicant respectfully submits that amended claim 16 is not taught or suggested by Okubo et al. Applicant directs the following comments to the unverified translation of Okubo that was previously submitted.

Following the amendment clarifications enumerated above,

1. Web of indeterminate length

The present application is generally directed to handling a web of indeterminate length. To further clarify this, claim 16 has been amended to recite "*[a] method of inducing a plastic deformation in a web of indeterminate length....*" "*...creating a web path for a web of*

indeterminate length...," and "*...passing the web of indeterminate length through the web path....*"

On the contrary, Okubo et al. teach a rolled form removing device for sheet type material 1. There is a significant difference between handling devices and methods for discrete sheets and handling devices and methods for webs of an indeterminate length. For example, as described in greater detail below, a greater amount of control is typically needed in sensing and controlling webs of indeterminate lengths than what is needed to sense and control discrete sheets.

Okubo et al. disclose a device for removing a rolled form from a sheet type material (*Okubo et al.*, bottom of p. 3). As shown in FIG. 1, the device includes a rolled form removal device positioned downstream of a cutter 6. As shown in FIGS. 1-3, the rolled form removal device includes a pair of upstream rollers 7, 9 and a pair of downstream rollers 8, 10. The leading edge of a sheet 1 can be detected in the rolled form removal device by either counting the number of revolutions of an upstream platen roller 4 and/or by a sensor 12. When it is detected that the leading edge of a sheet 1 is enclosed between the downstream rollers 8, 10, the relative speeds and directions of the upstream rollers 7, 9 and the downstream rollers 8, 10 are controlled to create a desired slack in the sheet material between the upstream rollers 7, 9 and the downstream rollers 8, 10. The amount of slack necessary to achieve removal is predetermined based on the material makeup of the sheet or the condition (degree) of the rolled form (*Id.*, top of page 6).

Even though the controls that Okubo et al. utilize may be satisfactory for a sheet handling system, where the rolled form removal device can respond independently to each sheet, this type of control would not be adequate for handling a "*web of indeterminate length,*" as claimed in amended claim 16. Particularly, sensing the position of the leading edge of the sheet 1 in the rolled form removal device and then using this to alter the relative speeds and/or directions of the upstream 7, 9 and downstream 8, 10 rollers is an open feedback loop, or a feed-forward control system. That is, when the presence of a sheet 1 is detected between the upstream 7, 9 and downstream 8, 10 rollers, the rollers 7, 8, 9 and 10 are correspondingly adjusted. There is no further adjustment or control of the rollers 7, 8, 9, 10 based on sensing the degree of slack achieved in the sheet material. As a result, the control system taught by Okubo et al. would not function for a "*web of indeterminate length*". Because the web of amended claim 16 is continuous and not of a discrete length, the same sensing means cannot be used to detect a leading edge. Without further sensing and adjusting the

position or slack of the web between the upstream rollers 7, 9 and the downstream rollers 8, 10, and further controlling such slack, small errors in the control system would accumulate and eventually become very large, thereby making the control system unreasonable for use with a web of indeterminate length.

Accordingly, Okubo et al. do not teach "*[a] method of inducing a plastic deformation in a web of indeterminate length,*" "*creating a web path for a web of indeterminate length,*" or "*passing a web of indeterminate length through the web path,*" as claimed in amended claim 16.

2. Web path definition

Amended claim 16 recites "*creating a web path for a web of indeterminate length, the web path including a first portion, a second portion, and a third portion . . . the web path including the location where the first portion initially contacts the first rotating member and the location where the third portion leaves the second rotating member . . . passing the web of indeterminate length through the web path, wherein there is no contact with the web along the web path on the second side of the web in the first, second, and third portions of the web path*" (emphasis added; amendment markings not shown).

Okubo et al. teach gripping the sheet material 1 in a nip formed between upstream rollers 7 and 9 and in a nip formed between downstream rollers 8 and 10. In the device taught by Okubo et al., the web comes into contact with the upstream rollers 7 and 9 at the same time as it enters the nip therebetween, such that the first and second sides of the web are contacted. Furthermore, the web comes into contact with the downstream rollers 8 and 10 as it enters the nip formed therebetween and then leaves the downstream rollers 8 and 10. Thus, if we were to analogize the device taught by Okubo et al. to claim 16, there is contact with the web along the web path on the second side of the web in the first portion and the second portion.

Furthermore, on page 9 of the Office action, the Examiner asserts that Applicant employs "holding means (140)" for holding the web against the co-rotating members. However, Applicant would like to point out that reference numeral 140 in FIG. 1A refers only to one example of a holding means, namely, an electrostatic pinning wire. An electrostatic pinning wire, along with the other examples of holding means given on page 5, lines 5-8 of the present application, does not involve contact of the second side of the web.

Accordingly, Okubo et al. do not teach a web path that includes "*the location where the first portion initially contacts the first rotating member and the location where the third portion leaves the second rotating member*" wherein when passing the web through the web path, "*there is no contact with the web along the web path on the second side of the web in the first, second, and third portions of the web path,*" as claimed in amended claim 16.

3. Creating a signal and controlling the effective radius based on the signal while the web is moving through the web path

Amended claim 16 recites "*creating a signal based on the position of the radiused section in the third portion of the web path or the measured radius of the radiused section, either singly or in a combination thereof,*" and "*controlling the effective radius based on the signal while the web is moving through the web path.*"

Okubo et al. disclose sensing the leading edge of sheet 1 in the rolled form removal device with sensor 12 (*Id.*, 2nd full paragraph on p. 5; FIGS. 1-4). Okubo et al. also disclose sensing when the leading edge of sheet material 1 is enclosed between the downstream rollers 8, 10 by counting the number of revolutions of the platen roller 4 (*Id.*, 2nd full paragraph on p. 5; FIG. 1). When it is detected that the leading edge of a sheet 1 is enclosed between the downstream rollers 8, 10, the relative speeds and directions of the upstream rollers 7, 9 and the downstream rollers 8, 10 are controlled to create a predetermined slack in the sheet material between the upstream rollers 7, 9 and the downstream rollers 8, 10. (*Id.*, pp. 5-6).

Okubo et al. detect if the sheet material 1 has achieved the predetermined slack state of f, g or h by determining the difference between the amount of paper the upstream rollers 7, 9 have transported and the amount of paper the downstream rollers 8, 10 have transported (*Id.*, 2nd paragraph, p. 6). However, no signal is created, nor is any control effected based on whether the sheet material has achieved its predetermined slack state, and definitely not "*while the web is moving through the web path,*" as claimed in amended claim 16.

Okubo et al. further teach that the distance between the upstream rollers 7, 9 and the downstream rollers 8, 10 can be controlled in response to detecting the diameter of the original winding roll (e.g., 1a, 1b or 1c, as shown in FIG. 1).

Thus, the only control Okubo et al. employ regarding the slack of the sheet material is to move the upstream 7, 9 and downstream 8, 10 rollers closer together, based on the diameter of the winding roll. "[C]*reating a signal based on the position of the radiused section in the third portion of the web path or the measured radius of the radiused section*" can include determining how much decurling is currently being done, whereas, measuring the diameter of the wound roll indicates how much decurling may need to be done.

Accordingly, Okubo et al. do not teach "*creating a signal based on the position of the radiused section in the third portion of the web path or the measured radius of the radiused section, either singly or in a combination thereof,*" as claimed in amended claim 16 (emphasis added) or "*controlling the effective radius based on the signal while the web is moving through the web path,*" as further claimed in claim 16 (emphasis added).

For at least the reasons described above, the Applicant respectfully submits that the rejection of claim 16 under 35 USC § 102(b) as being anticipated by Okubo et al. has been overcome and should be withdrawn.

Dependent claims 17, 19 and 20

Claim 17, 19 and 20 stand rejected under 35 USC § 102(b) as being anticipated by Okubo et al. (JP 6317175).

Claims 17, 19 and 20 are each ultimately dependent upon amended claim 16, and are therefore allowable based upon amended claim 16, and upon other features and elements claimed in claims 17, 19 and 20 but not specifically addressed herein.

For at least the reasons described above, the Applicant respectfully submits that the rejection of claims 17, 19 and 20 under 35 USC § 102(b) as being anticipated by Okubo et al. has been overcome and should be withdrawn.

35 USC § 103 REJECTIONS

Independent claim 16

Claims 16 stands rejected under 35 USC § 103(a) as being unpatentable over Brandes (U.S. Patent No. 4,190,245) in view of Carstedt (U.S. Patent No. 4,060,236) or Lewis Jr. et al. (U.S. Patent No. 4,322,802).

Brandes is directed to a "sheet flattener for a sheet-fed printing press" (*Brandes*, Abst; emphasis added). As admitted on page 6 of the Office action, Brandes does not teach "*creating a signal based on the position of the radiused section [in the third portion of the web path] or the measured radius of the radiused section, either singly or in a combination thereof*," or "*controlling the effective radius based on the signal while the web is moving through the web path.*" In addition, Brandes lacks any suggestion of creating any signal based on the position of the radiused section or the measured radius of the radiused section, either singly or in a combination thereof. There is simply no need to create any signal because the sheet handling system of Brandes does not require one to accomplish its intended purpose. Also, Brandes does not control the effective radius based on any signal, nor is it needed by Brandes to accomplish its intended purpose. In sum, Brandes is an open loop system and needs no signal to control the radiused section of the sheet.

Carstedt does not cure the deficiencies in Brandes in teaching "*creating a signal based on the position of the radiused section in the third portion of the web path or the measured radius of the radiused section, either singly or in a combination thereof*," or "*controlling the effective radius based on the signal while the web is moving through the web path*," as claimed in amended claim 16.

Carstedt discloses a "method and apparatus for continuously bending or creasing sheet material" (*Carstedt*, Abst; emphasis added). As shown in FIGS. 1-3, Carstedt teaches a decurler unit 10 that defines a pair of substantially parallel elongated support surfaces 11 and 12 which extend transversely across the entire width of sheet material, S. The decurler unit 10 further defines a chamber 13 which communicates with ambient conditions in zone, Z, between the support surfaces 11 and 12. A space is provided between the support surfaces, and a pressure gradient is provided in the space by means of a vacuum pump, P, and means for adjusting the pressure represented by valve, V.

Carstedt teaches that valve V may be adjusted to vary the pressure in chamber 13 to accommodate for various speeds of travel of sheet material, S, and various properties, including thickness, of the sheet material. Particularly, Carstedt teaches that "this adjustment can be made in empirical fashion until the required degree of creasing, bending or decurling is accomplished" (*Id.*, col. 4, lines 52-55; emphasis added). Carstedt further teaches that "[c]hanges in pressure

can be made in empirical fashion in order to achieve the degree of creasing desired" (*Id.*, col. 6, lines 2-3; emphasis added). This trial-and-error correction is very different from creating a signal based on a specific parameter and controlling an effective radius based on that signal "*while the web is moving through the web path,*" as claimed in claim 16.

Carstedt does not teach or even suggest the creation of any kind of "*signal,*" much less is there any signal created "*based on the position of the radiused section in the third portion of the web path or the measured radius of the radiused section, either singly or in a combination thereof,*" as claimed in amended claim 16.

Accordingly, Carstedt does not cure the deficiencies of Brandes in teaching all of the limitations of claim 16.

Lewis, Jr. et al. also do not cure the deficiencies in Brandes in teaching "*creating a signal based on the position of the radiused section in the third portion of the web path or the measured radius of the radiused section, either singly or in a combination thereof,*" or "*controlling the effective radius based on the signal while the web is moving through the web path,*" as claimed in amended claim 16.

Lewis, Jr. et al. teach a system and method for a web decurler that cancels the natural tendency of a web (and, particularly, a spliced web) to curl by inducing a reverse curl. The system includes an adjuster that can be operated to adjust the position of a periodically indexed web in response to a control signal. However, the control signal is based on the longitudinal displacement of the web, not on "*the position of the radiused section in the third portion of the web path or the measured radius of the radiused section, either singly or in a combination thereof,*" as claimed in amended claim 16.

There is no indication that the "*effective radius*" of the web in the decurler is at all controlled, much less, controlled "*based on the signal while the web is moving through the web path,*" as claimed in claim 16. On the contrary, the positioning adjustments are first made manually and then the system is set in automatic operation (see, e.g., *Lewis, Jr. et al.*, col. 5, lines 29-31).

As can be seen from the figures (e.g., FIG. 1) Lewis, Jr. et al. teach adjusting the wrap angle of the spliced web (and therefore residence time) around the small fixed radius rollers 12A, 12B. Adjusting the wrap angle, and therefore residence time, around the small fixed radius roller

is very different from "*controlling the effective radius*," as claimed in claim 16. Adjusting wrap angle uses viscoelastic (i.e., function of time) deformations, not plastic (i.e., time independent) deformation.

Accordingly, Lewis, Jr. et al. do not cure the deficiencies of Brandes in teaching all of the limitations of claim 16.

For at least the reasons described above, the Applicant respectfully submits that the rejection of claim 16 under 35 USC § 103(a) as being unpatentable over Brandes in view of Carstedt or Lewis, Jr. et al. has been overcome and should be withdrawn.

Dependent claims 17-20

Claims 17, 19 and 20 stand rejected under 35 USC § 103(a) as being unpatentable over Brandes (U.S. Patent No. 4,190,245) in view of Carstedt (U.S. Patent No. 4,060,236) or Lewis Jr. et al. (U.S. Patent No. 4,322,802).

On page 7 of the Office action, claim 18 is rejected under 35 USC 102(b) as being anticipated by Brandes in view of Lewis, Jr. et al. or Carstedt, and further in view of Crowley et al. (U.S. Patent No. 6,626,343). Applicant assumes this was intended to be a rejection of claim 18 under 35 USC 103(a) as being obvious over Brandes in view of Lewis, Jr. et al. or Carstedt, and further in view of Crowley et al. (U.S. Patent No. 6,626,343).

Claims 17-20 are each ultimately dependent upon amended claim 16, and are therefore allowable based upon amended claim 16, and upon other features and elements claimed in claims 17-20 but not specifically addressed herein.

For at least the reasons described above, the Applicant respectfully submits that the rejections of claims 17-20 under 35 USC § 103(a) have been overcome and should be withdrawn.

Conclusion

In view of the amendments and remarks presented herein, Applicants respectfully submit that the application is in condition for allowance.

Applicants request that the Examiner telephone the undersigned agent of record in the event a telephone discussion would be helpful in advancing the prosecution of the present application.

Respectfully submitted,

February 21, 2007
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